

a chamber section coupled to said input channel and located after said input channel, said chamber section having a chamber interior wall;

an eddy chamber coupled to said chamber section and located after said chamber section;

an outlet channel coupled to said eddy chamber and located after said eddy chamber;

an insert body located in said chamber section and extending into said eddy chamber;

at least one rib extending between said insert body and said chamber section interior wall, forming a helical groove in said chamber section and not extending into said eddy chamber;

said helical groove having constant cross sectional area but variable pitch along its length;

a gas outlet located along said axis in said eddy chamber;

whereby blood containing gas bubbles entering said input channel are directed into said chamber section where said helical groove accelerates said blood and causes it to enter said eddy chamber.

23.A device for extracting gas bubbles from blood comprising:

a housing having an input channel and an outlet channel;

said input channel and said outlet channel being concentric along a housing axis;

a chamber section coupled to said input channel and located after said input channel, said chamber section having a chamber interior wall;

an eddy chamber coupled to said chamber section and located after said chamber section;

an outlet channel coupled to said eddy chamber and located after said eddy chamber;

an insert body located in said chamber section and extending into said eddy chamber;

at least one rib extending between said insert body and said chamber section interior wall, forming a helical groove in said chamber section and not extending into said eddy chamber;

said helical groove having variable cross sectional area but constant pitch along its length;

a gas outlet located along said axis in said outlet channel;

whereby blood containing gas bubbles entering said input channel are directed into said chamber section where said helical groove accelerates said blood and causes it to enter said eddy chamber .

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30. A method of removing gas bubbles from blood comprising the steps of:

introducing blood into a helical groove where it is accelerated both axially and radially forming an accelerated blood flow ;

introducing said accelerated blood flow into an eddy chamber along a tangent, where said blood is allowed to continue to turn while decelerating;

extracting a portion of said blood flow from a location near the central axis of flow.

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